CLAIMS

What is claimed is:

1 1.   A method comprising:

2   receiving an input corresponding to generation of a pattern in a computer

3 aided design (CAD) geometry piece, the pattern comprising a plurality of features

4 included within a boundary of the CAD geometry piece;

5   receiving an indication of modification to the CAD geometry piece;

6   automatically modifying the CAD geometry piece and its boundary based at

7 least upon the received indication; and

8   automatically modifying at least one of the pattern and the plurality of features

9 to be continuously included within the boundary of the modified CAD geometry

10 piece, based at least upon the modified CAD geometry piece and the received input.

1 2.   The method of claim 1, wherein said receiving the input comprises receiving

2 an input corresponding to an indication of a direction, the indication having an X-

3 component and a Y-component.

1 3.   The method of claim 1, wherein said receiving the input comprises receiving a

2 boundary value, the boundary value having at least one of a maximum value and a

3 minimum value for the plurality of features to be adjacent said boundary.

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1   4.   The method claim 1, wherein said receiving the indication of modification

2   comprises receiving an indication of modification to a 2-D geometry piece

3   parametrically defining the CAD geometry piece.

1   5.   The method of claim 4, wherein said receiving the modification to the

2   geometry comprises receiving an indication of modification of a dimension of the 2-D

3   geometry piece parametrically defining said CAD geometry piece.

1   6.   The method of claim 1, wherein said receiving the input comprises receiving

2   an indication to optimize the pattern.

1   7.   The method of claim 1, wherein said automatically modifying the CAD

2   geometry piece comprises parametrically updating the CAD geometry piece.

1   8.   The method of claim 1, wherein said automatically modifying at least one of

2   the pattern and the plurality of features comprises automatically determining

3   modification, if any, is necessary for various dimensional sizes of each of the

4   plurality of features.

1   9.   The method of the claim 1, wherein said automatically modifying at least one

2   of the pattern and the plurality of features comprises automatically determining

3   modification, if any, is necessary to an inter-feature distance between each of the

4   plurality of features.

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1   10.   The method of claim 1, wherein said automatically modifying at least one of

2   the pattern and the plurality of features comprises automatically determining

3   modification, if any, is necessary to a dimension to conform to a user specified input.

1   11.   The method of claim 1, wherein said automatically modifying at least one of

2   the pattern and the plurality of features comprises automatically determining

3   modification, if any, is necessary to a first dimension in view of a determined

4   modification to a second dimension, to maintain a relationship between said first and

5   second dimensions.

1   12.   An apparatus comprising:

2   a storage medium having stored therein a plurality of programming

3   instructions, which when executed, the instructions cause the apparatus to

4   receive an input corresponding to generation of a pattern in a computer

5   aided design (CAD) geometry piece, the pattern comprising a

6   plurality of features included within a boundary of the CAD

7   geometry piece,

8   receive an indication of modification to the CAD geometry piece,

9   automatically modify the CAD geometry piece and its boundary based

10   at least upon the received indication, and

11   automatically modify at least one of the pattern and the plurality of

12   features to be continuously included within the boundary of the

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13   modified CAD geometry piece, based at least upon the modified

14   CAD geometry piece and the received input; and

15   a processor coupled to the storage medium to execute the programming

16 instructions.

1 13. The apparatus of claim 12, wherein said programming instructions, which

2 when executed, cause the apparatus to receive an input corresponding to an

3 indication of a direction, the indication having an X-component and a Y-component.

1 14. The apparatus of claim 12, wherein said programming instructions, which

2 when executed, cause the apparatus to receive a boundary value, the boundary

3 value having at least one of a maximum value and a minimum value for the plurality

4 of features to be adjacent said boundary.

1 15. The apparatus of claim 12, wherein said programming instructions, which

2 when executed, cause the apparatus to receive an indication of modification to a 2-D

3 geometry piece parametrically defining the CAD geometry piece.

1 16. The apparatus of claim 15, wherein said programming instructions, which

2 when executed, cause the apparatus to receive an indication of modification of a

3 dimension of the 2-D geometry piece parametrically defining said CAD geometry

4 piece.

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1   17.   The apparatus of claim 12, wherein said programming instructions, which

2   when executed, cause the apparatus to receive an indication to optimize the pattern.

1   18.   The apparatus of claim 12, wherein said programming instructions, which

2   when executed, cause the apparatus to parametrically update the CAD geometry

3   piece.

1   19.   The apparatus of claim 12, wherein said programming instructions, which

2   when executed, cause the apparatus to automatically determining modification, if

3   any, is necessary for various dimensional sizes of each of the plurality of features.

1   20.   The apparatus of claim 12, wherein said programming instructions, which

2   when executed, cause the apparatus to automatically determine modification, if any,

3   is necessary to an inter-feature distance between each of the plurality of features.

1   21.   The apparatus of claim 12, wherein said programming instructions, which

2   when executed, cause the apparatus to automatically determine modification, if any,

3   is necessary to a dimension to conform to a user specified input.

1   22.   The apparatus of claim 12, wherein said programming instructions, which

2   when executed, cause the apparatus to automatically determine modification, if any,

3   is necessary to a first dimension in view of a determined modification to a second

4   dimension, to maintain a relationship between said first and second dimensions.

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1 23.   An article of manufacture having stored therein a plurality of programming

2 instructions, which when executed, the instructions cause a machine to

3   receive an input corresponding to generation of a pattern in a computer aided

4   design (CAD) geometry piece, the pattern comprising a plurality of

5   features included within a boundary of the CAD geometry piece,

6   receive an indication of modification to the CAD geometry piece,

7   automatically modify the CAD geometry piece and its boundary based at least

8   upon the received indication, and

9   automatically modify at least one of the pattern and the plurality of features to

10   be continuously included within the boundary of the modified CAD

11   geometry piece, based at least upon the modified CAD geometry piece

12   and the received input.

1 24.   The article of manufacture of claim 23, wherein said programming

2 instructions, which when executed, cause the machine to receive an input

3 corresponding to an indication of a direction, the indication having an X-component

4 and a Y-component.

1 25.   The article of manufacture of claim 23, wherein said programming

2 instructions, which when executed, cause the machine to receive a boundary value,

3 the boundary value having at least one of a maximum value and a minimum value

4 for the plurality of features to be adjacent said boundary.

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1   26.   The article of manufacture of claim 23, wherein said programming

2   instructions, which when executed, cause the machine to receive an indication of

3   modification to a 2-D geometry piece parametrically defining the CAD geometry

4   piece.

1   27.   The article of manufacture of claim 27, wherein said programming

2   instructions, which when executed, cause the machine to receive an indication of

3   modification of a dimension of the 2-D geometry piece parametrically defining said

4   CAD geometry piece.

1   28.   The article of manufacture of claim 23, wherein said programming

2   instructions, which when executed, cause the machine to receive an indication to

3   optimize the pattern.

1   29.   The article of manufacture of claim 23, wherein said programming

2   instructions, which when executed, cause the machine to parametrically update the

3   CAD geometry piece.

1   30.   The article of manufacture of claim 23, wherein said programming

2   instructions, which when executed, cause the machine to automatically determining

3   modification, if any, is necessary for various dimensional sizes of each of the

4   plurality of features.

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1　31.　The article of manufacture of claim 23, wherein said programming

2　instructions, which when executed, cause the machine to automatically determine

3　modification, if any, is necessary to an inter-feature distance between each of the

4　plurality of features.

1　32.　The article of manufacture of claim 23, wherein said programming

2　instructions, which when executed, cause the machine to automatically determine

3　modification, if any, is necessary to a dimension to conform to a user specified input.

1　33.　The article of manufacture of claim 23, wherein said programming

2　instructions, which when executed, cause the machine to automatically determine

3　modification, if any, is necessary to a first dimension in view of a determined

4　modification to a second dimension, to maintain a relationship between said first and

5　second dimensions.

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